

CLAIM AMENDMENTS

1. (Currently Amended) A method for manufacturing a semiconductor device, said method comprising ~~the steps of~~:

forming a stopper film on a semiconductor substrate having a conductive layer ~~formed~~ therein;

forming an interlayer insulating film on said stopper film, said interlayer insulating film being ~~made of~~ a low dielectric constant material;

forming a capping film on said interlayer insulating film;

forming a resist film on said capping film, said resist film having a predetermined pattern;

etching said capping film and said interlayer insulating film using said resist film as a mask to form an opening reaching said stopper film;

with said resist film left in place, etching the portion of said stopper film exposed ~~at~~ by said opening to form a via hole; and

after ~~said step of~~ forming said via hole, removing said resist film ~~through~~ by ashing.

2. (Currently Amended) The method as claimed in claim 1, further comprising ~~steps of~~:

forming a barrier metal film on an inner surface of said via hole; and

forming a copper layer on said barrier metal film such that said copper layer fills said via hole.

3. (Currently Amended) The method as claimed in claim 1 ~~or 2, wherein said~~ including ashing ~~is carried out~~ at a temperature of 200°C to 400°C using a ~~mixed gas~~ mixture consisting of hydrogen and an inert gas.

4. (Currently Amended) The method as claimed in claim 3, wherein the volume percent of ~~said~~ the hydrogen with respect to ~~said~~ the inert gas is 1% to 40%.

5. (Currently Amended) The method as claimed in claim 4, wherein ~~said~~ the inert gas is argon ~~gas~~ and the volume percent of ~~said~~ the hydrogen with respect to ~~said~~ the argon ~~gas~~ is 10% to 40%.

6. (Currently Amended) The method as claimed in claim 4, wherein ~~said the~~ inert gas is helium ~~gas~~ and the volume percent of ~~said the~~ hydrogen with respect to ~~said the~~ helium ~~gas~~ is 1% to 30%.

7. (Currently Amended) The method as claimed in ~~any one of claims 1 to 6~~ claim 1, wherein said conductive layer is a copper wiring layer.

8. (Currently Amended) The method as claimed in ~~any one of claims 1 to 7~~ claim 1, wherein said interlayer insulating film is selected from ~~a~~ the group consisting of a porous SiO₂ film, a porous SiOC film, and a porous ~~SOG~~ spin on glass film.

9. (Currently Amended) The method as claimed in ~~any one of claims 1 to 8~~ claim 1, wherein said stopper film is selected from ~~a~~ the group consisting of an SiC film, an Si_xN_y film, an SiCN film, and an SiOC film.

10. (Currently Amended) The method as claimed in ~~any one of claims 1 to 9~~ claim 1, wherein said capping film is one of an SiO₂ film ~~or~~ and an Si_xN_y film.

11. (New) The method as claimed in claim 2, including ashing at a temperature of 200°C to 400°C using a mixture consisting of hydrogen and an inert gas.

12. (New) The method as claimed in claim 11, wherein the volume percent of the hydrogen with respect to the inert gas is 1% to 40%.

13. (New) The method as claimed in claim 12, wherein the inert gas is argon and the volume percent of the hydrogen with respect to the argon is 10% to 40%.

14. (New) The method as claimed in claim 12, wherein the inert gas is helium and the volume percent of the hydrogen with respect to the helium is 1% to 30%.

15. (New) The method as claimed in claim 2, wherein said conductive layer is a copper wiring layer.

16. (New) The method as claimed in claim 3, wherein said conductive layer is a copper wiring layer.

17. (New) The method as claimed in claim 2, wherein said interlayer insulating film is selected from the group consisting of a porous SiO_2 film, a porous SiOC film, and a porous spin on glass film.

18. (New) The method as claimed in claim 2, wherein said stopper film is selected from the group consisting of an SiC film, an Si_xN_y film, an SiCN film, and an SiOC film.

19. (New) The method as claimed in claim 2, wherein said capping film is one of an SiO_2 film and an Si_xN_y film.